(TITLE OF THE DOCUMENT) Drawing

(Fig. 1)

10 control section

20 memory

30 interface circuit

40 print controlling section

41 print head

42 carriage motor

43 paper feeding motor

44 cleaning mechanism

50 operation panel

60 display panel

100 printing means

210 first ink cartridge

220 second ink cartridge

230 memory 1

240 memory 2

(Fig. 3)

black ink cartridge and color ink cartridge

250, 260 contact

(Fig. 2)

S1 Mounting of first ink cartridge

S2 Mounting of second ink cartridge

S3 Reading of information 1 from memory 1

S4 Reading of information 2 from memory 2

S5 First ink cartridge is fitted to apparatus?

S6 Second ink cartridge is fitted to apparatus?

S7 Stopping of apparatus, display of unfitted tank 1

S8 Stopping of apparatus, display of unfitted tank 2

S9 Fitness between first and second ink cartridges is OK?

S10 Stopping of apparatus, warning display of unfitness between first and second ink cartridges

To printing operation

(Fig. 4)

10a control section

20a memory

30a interface circuit

40a print controlling section

41a print head

42a carriage motor

43a paper feeding motor

44a cleaning mechanism

50a operation panel

60a display panel

100a printing means

210a first ink cartridge

220a second ink cartridge

230a memory 1

240a memory 2

(Fig. 9)

black ink cartridge and color ink cartridges

250(260) contact

(Fig. 5)

T1 Mounting of first and second ink cartridges

T2 Reading of residual ink amounts from memories 1 and 2

T3 Residual ink amount is larger than preset minimum ink amount?

T4 Stopping of apparatus, Ink end display of ink cartridge

T5 Print starting

T6 Addition of amounts of ink used in printing and in dummy ink ejection

T7 Rewriting of residual ink amount in memory 1 every time printing of one page is completed

T8 Cleaning is required?

T9 Cleaning instruction

T10 Reading of residual ink amount of first ink cartridge

T11 Reading of residual ink amount of second ink cartridge

T12 Residual ink amount is larger than sum of preset minimum ink amount and ink amount necessary for cleaning operation

T13 Residual ink amount is larger than sum of preset minimum ink amount and ink amount necessary for cleaning operation

T14 Cleaning

T15 Stopping of apparatus, Ink end display of first ink cartridge

T16 Stopping of apparatus, Ink end display of second ink cartridge

T17 Cartridge exchange

T18 Cartridge exchange

(Fig. 6)

U9 Cleaning is required?

U10 Reading of residual ink amount of first ink cartridge

U11 Reading of residual ink amount of second ink cartridge

U12 Residual ink amount of first ink cartridge is larger than that of second cartridge?

U13 Residual ink amount of first ink cartridge is larger than sum of preset minimum ink amount and ink amount necessary for cleaning operation?

U14 Execution of cleaning operation which requires small amount of ink up to the preset minimum ink amount of first ink cartridge

U15 Execution of normal cleaning

U16 Ink end display of first ink cartridge

U17 Ink cartridge exchange

U18 Residual ink amount of second ink cartridge is larger than sum of preset minimum ink amount and ink amount necessary for cleaning operation?

U19 Execution of cleaning operation which requires small amount of ink up to the preset minimum ink amount of second ink cartridge

U20 Ink end display of second ink cartridge

U21 Ink cartridge exchange

To next step

(Fig. 7)

10b control section

20b memory

30b interface circuit

40b print controlling section

42b carriage motor

43b paper feeding motor

44b cleaning mechanism

50b operation panel

60b display panel

100b printing means

210b first ink cartridge

220b second ink cartridge

230b memory 1

240b memory 2

41b print head

(Fig. 8)

For text printing, for general business

ink cartridge X and ink cartridge Y

For photo printing

ink cartridge X´ and ink cartridge Y´

To printing means

【書類名】　図　面

FIG. 1
【図1】

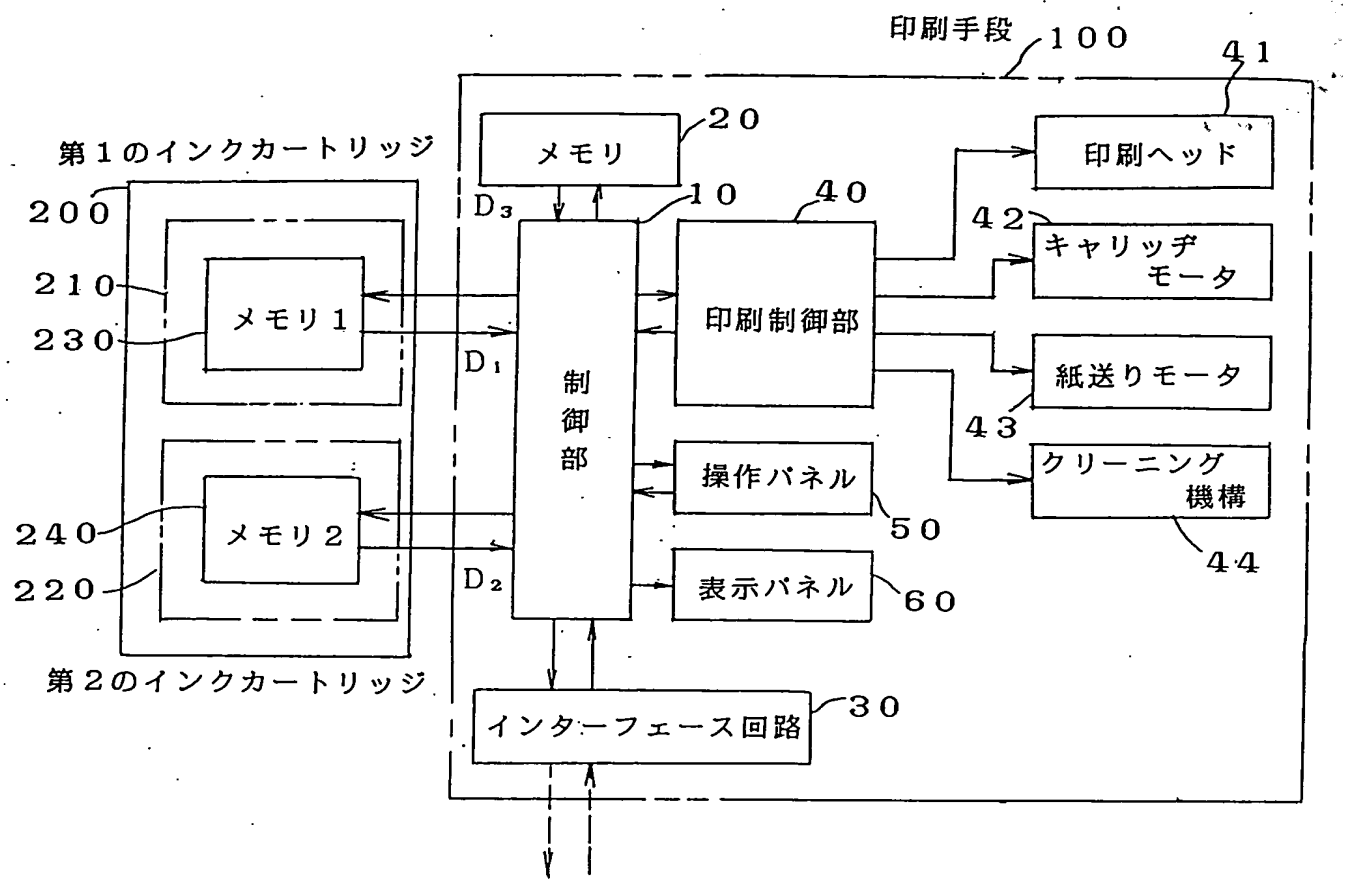


FIG. 3
【図3】

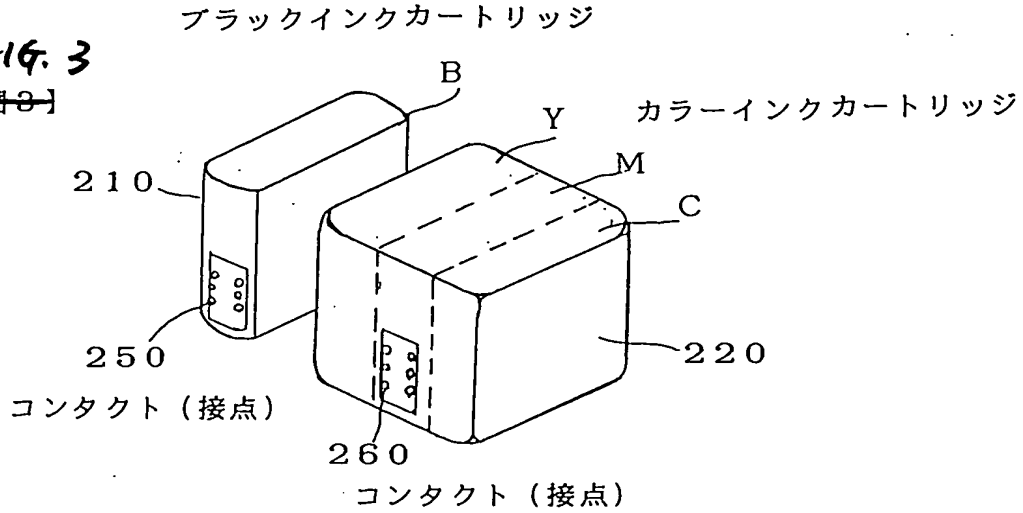


FIG. 2
~~[図2]~~

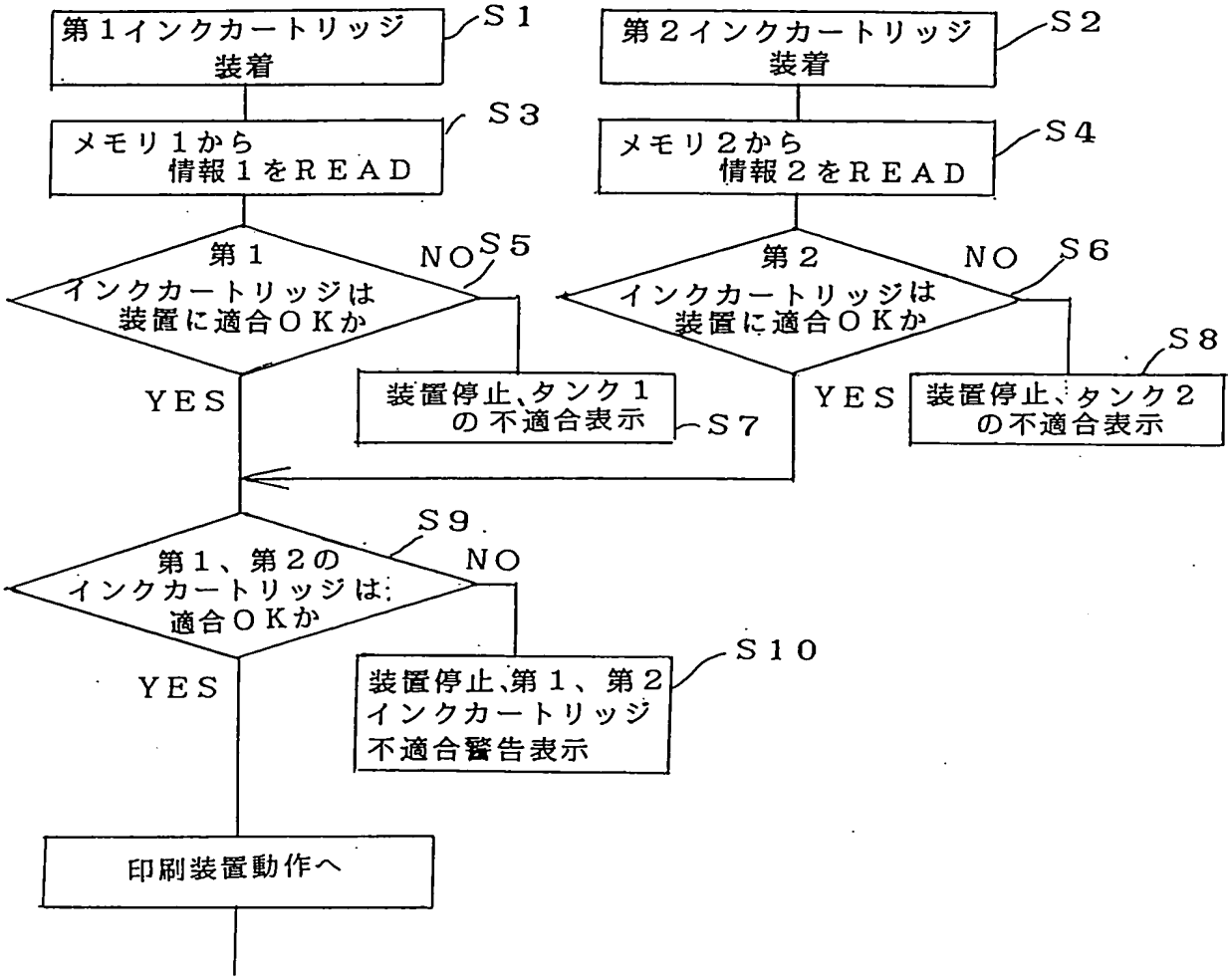
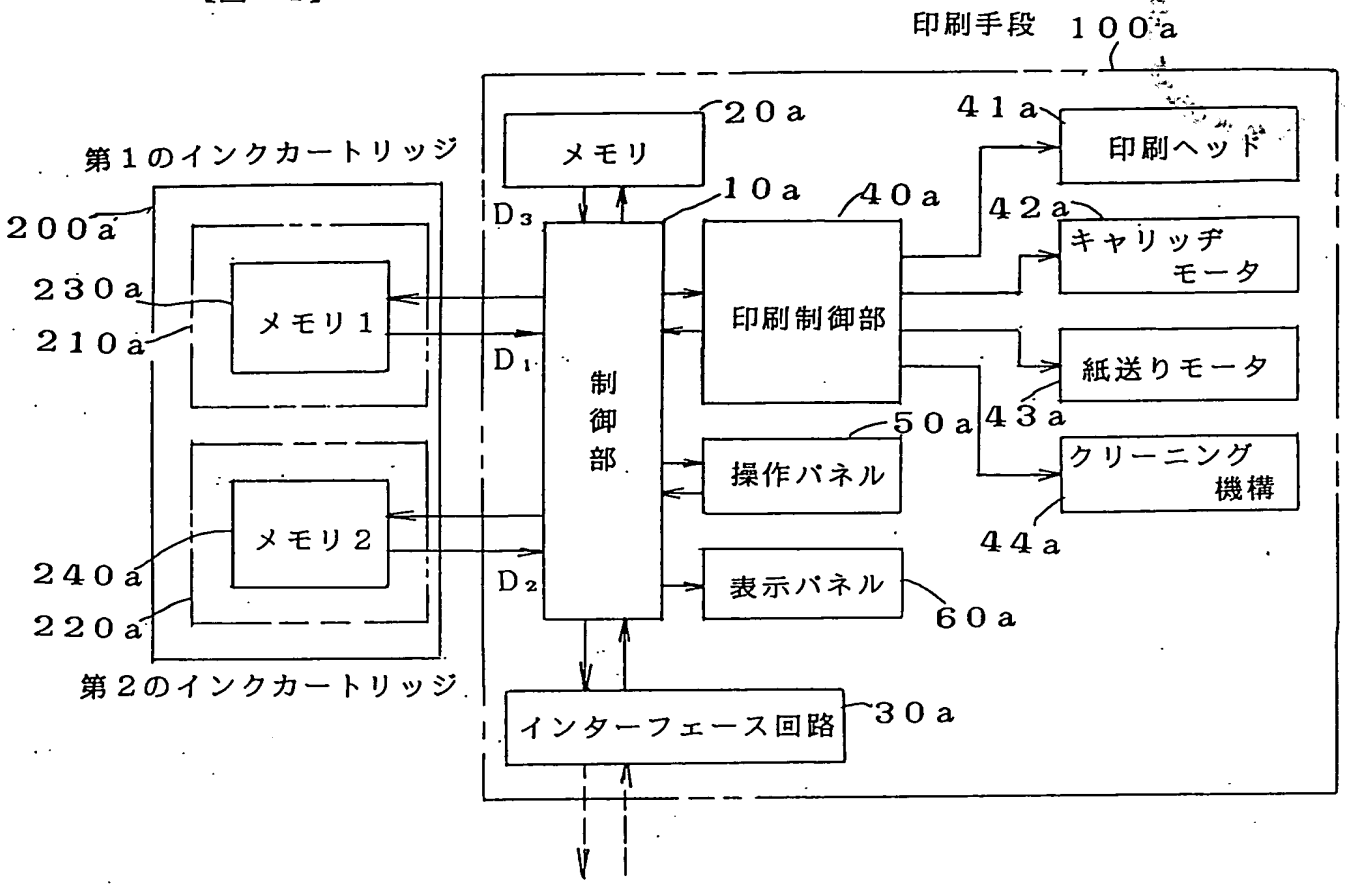
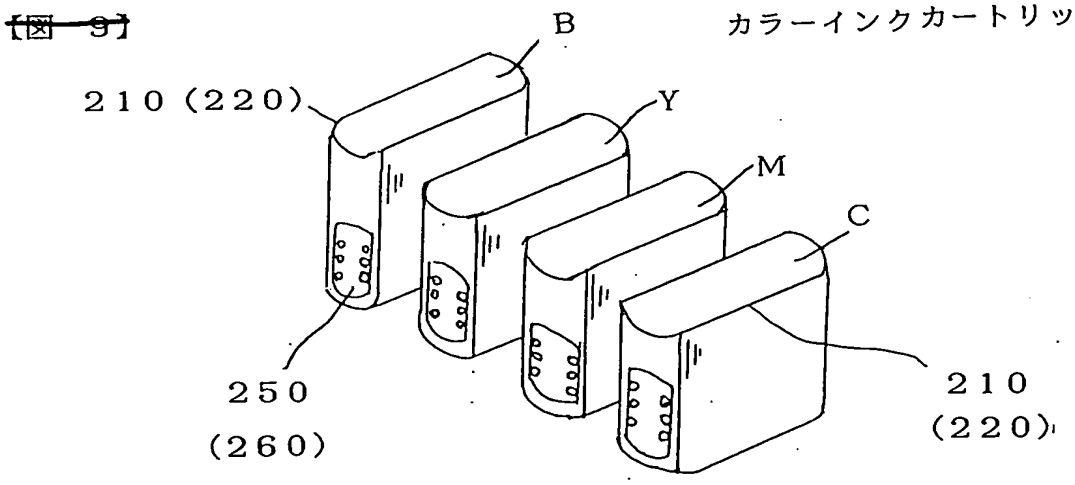

第１インクカートリッジ装着
S１
第２インクカートリッジ装着
S２
メモリ１から情報１をＲＥＡＤ
S３
メモリ２から情報２をＲＥＡＤ
S４
第１インクカートリッジは装置に適合ＯＫか
NO
S５
第２インクカートリッジは装置に適合ＯＫか
NO
S６
YES
装置停止、タンク１の不適合表示
S７
YES
装置停止、タンク２の不適合表示
S８
第１、第２のインクカートリッジは適合ＯＫか
S９
NO
YES
装置停止、第１、第２インクカートリッジ不適合警告表示
S１０
印刷装置動作へ

FIG. 4
【図 4】



ブラックインクカートリッジ

FIG. 9
【図 9】



コンタクト（接点）

FIG. 5
~~[図 5]~~

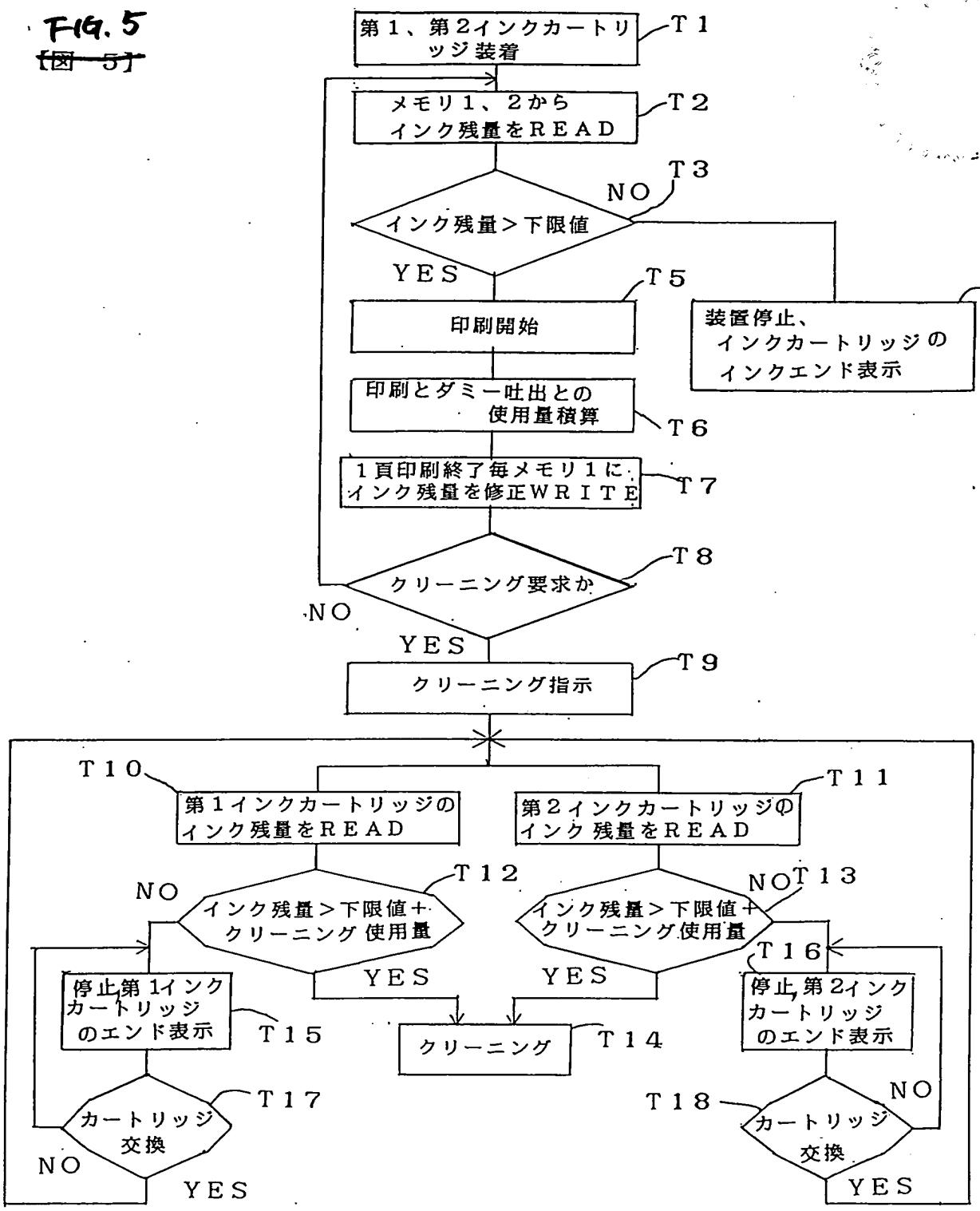

第１、第２インクカートリッジ装着
T１
メモリ１、２からインク残量をＲＥＡＤ
T２
T３
インク残量＞下限値
NO
YES
T４
装置停止、インクカートリッジのインクエンド表示
T５
印刷開始
印刷とダミー吐出との使用量積算
T６
１頁印刷終了毎メモリ１にインク残量を修正ＷＲＩＴＥ
T７
T８
クリーニング要求か
NO
YES
T９
クリーニング指示
T１０
第１インクカートリッジのインク残量をＲＥＡＤ
T１１
第２インクカートリッジのインク残量をＲＥＡＤ
T１２
インク残量＞下限値＋クリーニング使用量
NO
YES
T１３
インク残量＞下限値＋クリーニング使用量
NO
YES
T１６
停止第１インクカートリッジのエンド表示
T１５
停止第２インクカートリッジのエンド表示
クリーニング
T１４
T１７
カートリッジ交換
NO
YES
T１８
カートリッジ交換
NO
YES

FIG. 6
[図 6]

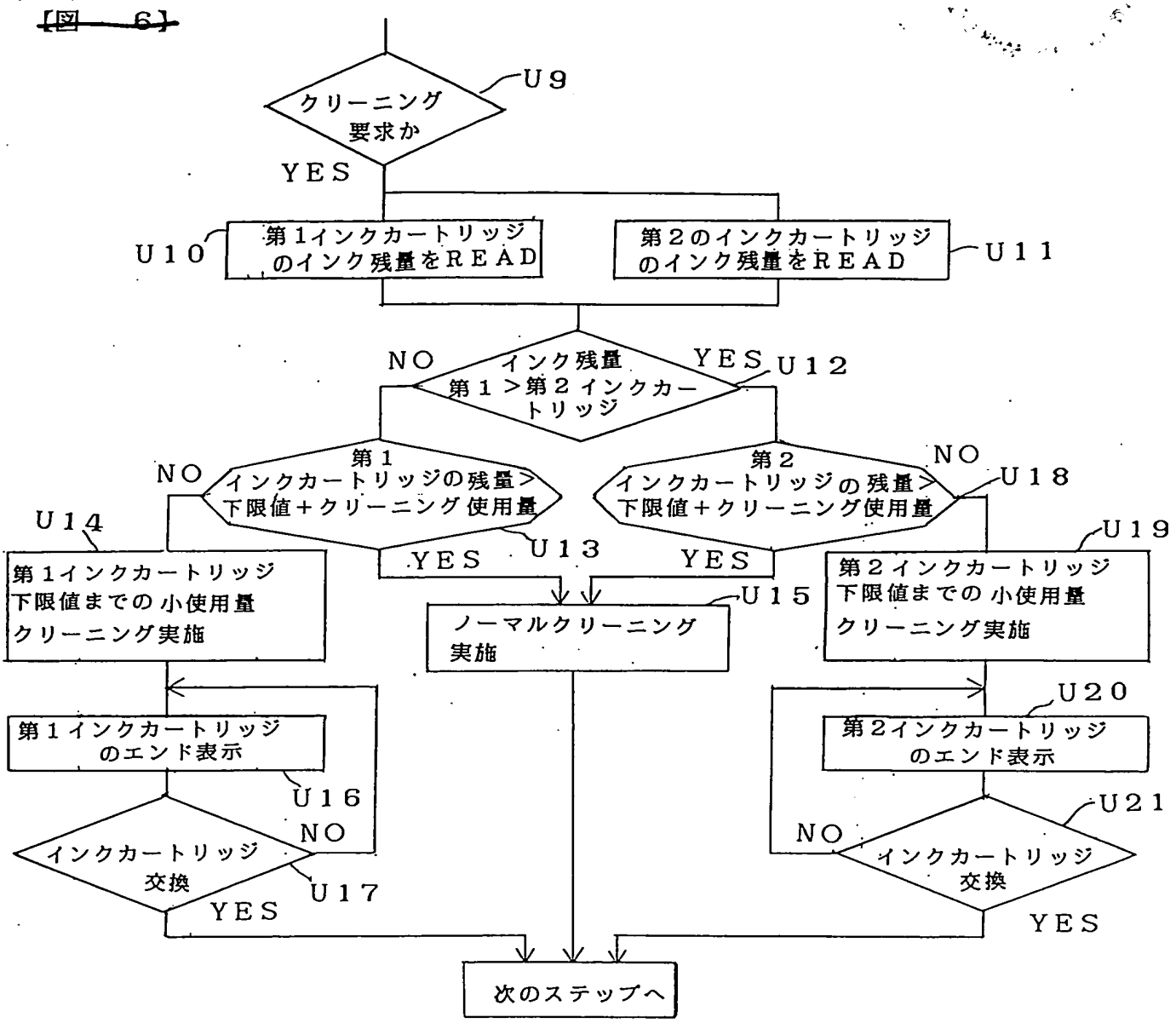

クリーニング要求か
U9
YES
第1インクカートリッジのインク残量をREAD
U10
第2のインクカートリッジのインク残量をREAD
U11
インク残量 第1>第2インクカートリッジ
NO
YES
U12
第1インクカートリッジの残量>下限値+クリーニング使用量
NO
U13
YES
第2インクカートリッジの残量>下限値+クリーニング使用量
NO
U18
YES
U14
第1インクカートリッジ下限値までの小使用量クリーニング実施
ノーマルクリーニング実施
U15
U19
第2インクカートリッジ下限値までの小使用量クリーニング実施
第1インクカートリッジのエンド表示
U16
インクカートリッジ交換
NO
U17
YES
U20
第2インクカートリッジのエンド表示
U21
NO
インクカートリッジ交換
YES
次のステップへ

FIG. 7
【図7】

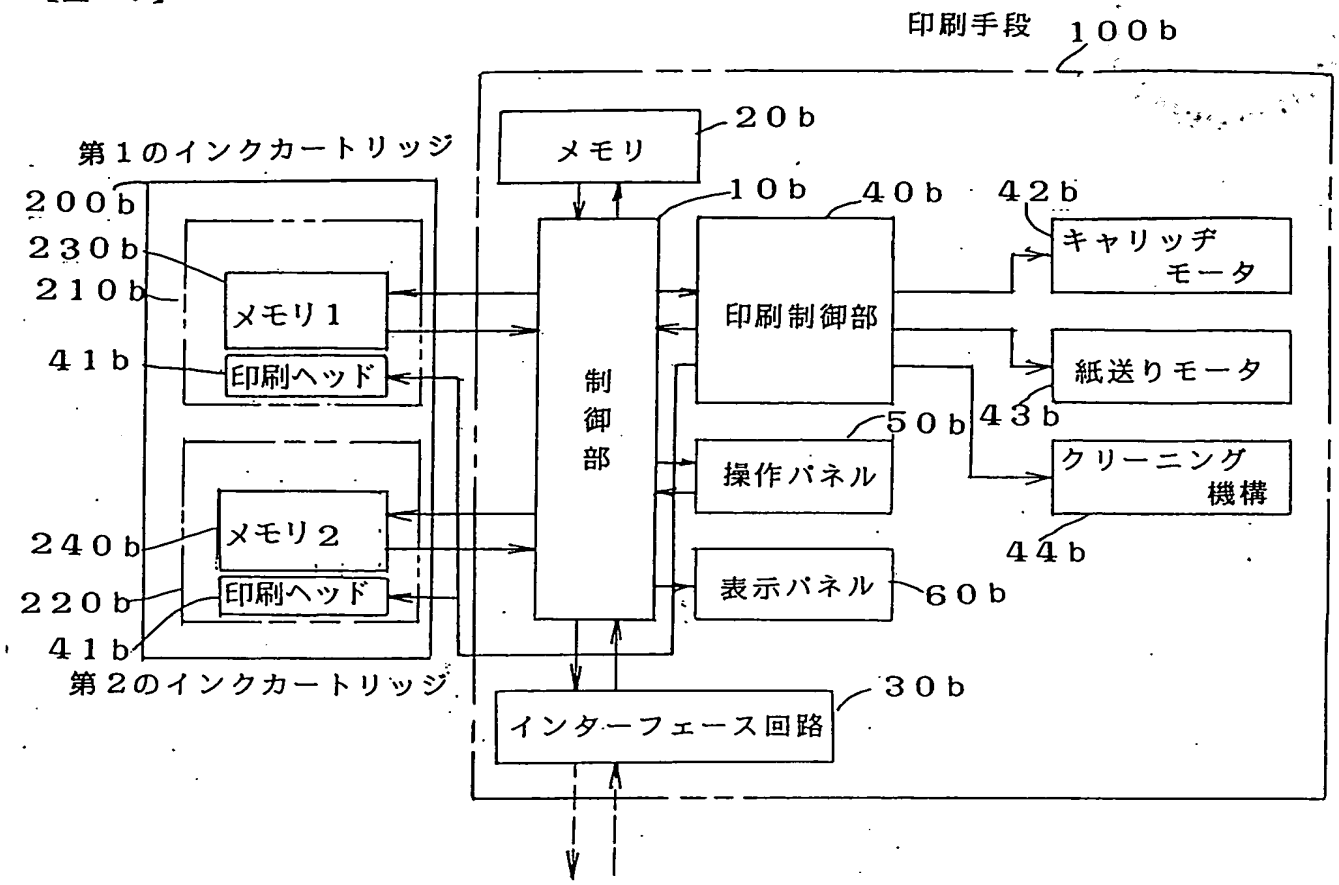


FIG. 8
【図8】

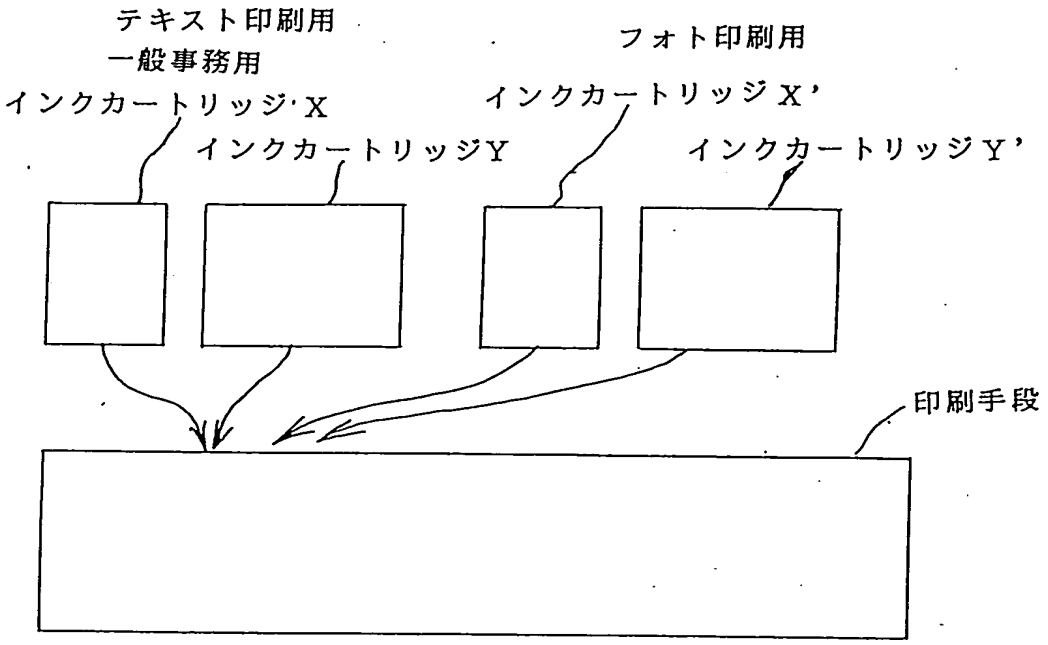
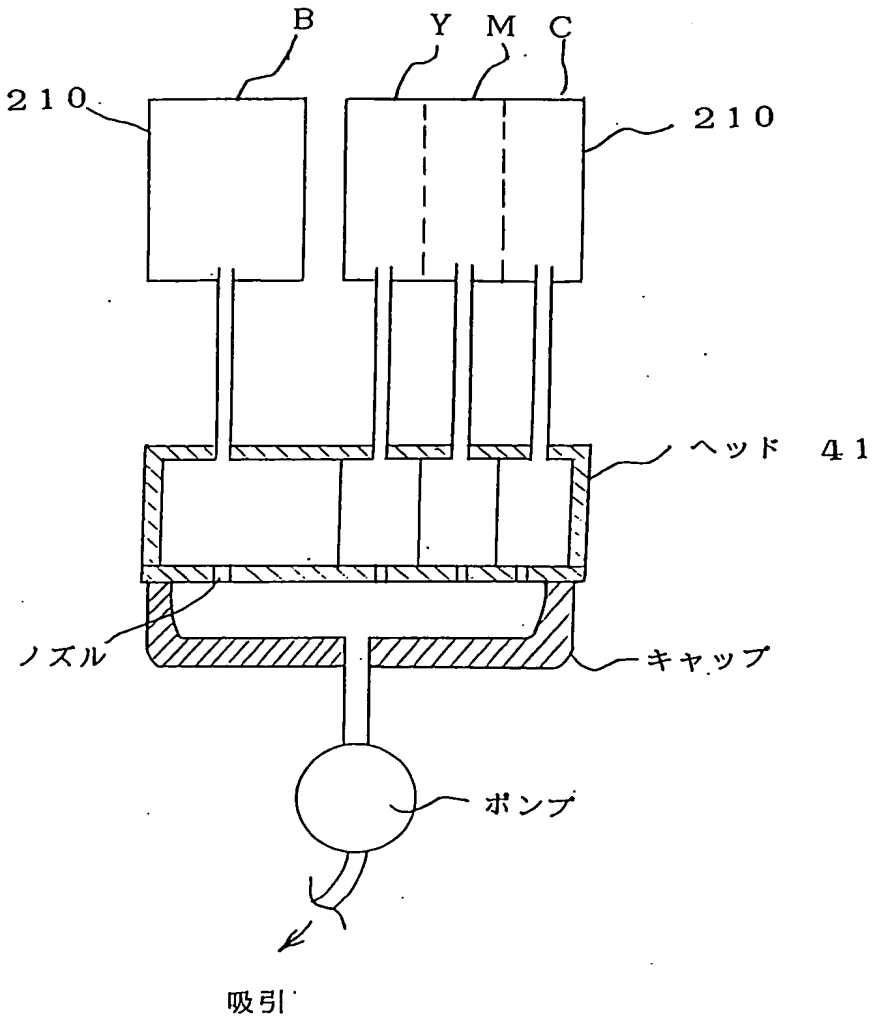


FIG. 10

~~[図10]~~